

Restriction Requirement

Applicant affirms provisional election, without traverse, to prosecute the invention of Group I, claims 1-15.

Rejections Under 35 USC § 112

Appropriate amendments have been made to claims 1, 13 and 14 to obviate the basis for rejections of those claims.

Claim 21 has been added to the withdrawn claims of Group II. Having claim 21 depend from claim 1 was in error. The correct dependency of claim 21 is from claim 16, a withdrawn claim.

Rejections Under 35 USC § 102

Claim 1 and new claim 25 require that the Group VIII and Group VIB metal components make up at least about 70 wt.% of the catalyst composition, calculated as oxides. Support for this amendment may be found in original claim 2.

Young '947 describes a preparation process for a catalyst useful for hydrocarbon conversion containing Mo and/or W on a support (Abstract; claim 1). The catalyst contains preferably 5-40 wt.% of Group VIB metals, calculated as oxides, and optionally iron group metals in an amount of 0.2-20 wt.%, calculated as metals (col. 5, ll. 14-28). In the examples, catalysts containing 4 wt.% of Ni and 17 wt.% of MoO₃, and 3 wt.% of Co and 12 wt.% of MoO₃ are described.

Instant claims 1 and 25 are novel with regard to the disclosure of Young '947 in that the instant catalyst composition is made up of at least about 70 wt.% of Group VIII and Group VIB metal components, calculated as oxides.

DeAngelis '317 describes a composition wherein catalyst-agglomerate bodies are encapsulated in a porous structure (col. 3, ll. 17-19). The catalytically active metal component is mixed with a high surface area oxide, resulting in a catalyst-agglomerate body, which is then contacted with an organic binder, and mixed with a batch material to form a structural body, followed by firing (col. 2, ll. 57-66; col. 3, ll. 19-20, ll. 29-33, ll. 43-44, ll. 53-54, ll. 59-60; col. 4, ll. 43-44, l. 55; claim 21). The batch material can be among others a metal powder, a preferred composition of which consists of 30-90 wt.% of Fe, 5-50 wt.% of Al, and optionally up to 10 wt.% of Cr (col. 3, l. 68-col. 4 l. 7; col. 4, ll. 30-36; claim 11). Thus, the composition disclosed by DeAngelis contains four constituents: a catalytically active metal component including non-noble Group VIII and Group VIB metals, a high surface area oxide, an organic binder, and a batch material including metal powders containing Fe and Cr.

Although DeAngelis '317 does not disclose the relative amounts of its constituents, it is inherent in the composition of this reference that the catalytically active metal component forms only a minor part, i.e. less than 50 wt.%, of the whole composition. This is further supported by the examples: in Example 1, 40 wt.% of the spinel catalyst- agglomerate bodies, containing the active metals (Rh and Pt), is mixed with 60 wt.% of a Mn cordierite glass powder; in Example 2, 50 g of the catalyst-agglomerate bodies, containing the active metals (Rh and Pt), is mixed with 950 g of stainless steel; in Example 3, 11 wt.% of the catalyst-agglomerate bodies, containing the active metals (Rh and Pt), is added to a batch material containing a Fe-Al alloy.

In Example 3, the final composition thus contains an iron-containing batch material, acting as a structural body for the composition. This iron, however, is in a catalytically inactive form. By contrast, the catalyst composition of the present invention contains at least about 70 wt.% of Group VIII and Group VIB metal components, calculated as oxides, wherein these metal components are the

catalytically active metal components, as is reflected throughout the application. Therefore, the catalyst composition of claims 1 and 25 are different from the composition disclosed in this reference in that it contains at least about 70 wt.% of catalytically active metal components, i.e. Group VIII and Group VIB metal components.

The catalyst composition of the present invention is thus novel over DeAngelis.

As regards JP 57-119837, a computer translation of which is enclosed, this reference discloses a catalyst for olefin oxidation. Claim 1 is novel over this reference in view of the requirement that at least part of the metal components of the catalyst composition is in the sulphided form, which was the subject-matter of original claim 15. Claim 25 is novel over this reference in view of the composition of claim 25 being limited to compositions comprising at least molybdenum and tungsten as Group VIB metal components. The basis for this amendment can be found on page 5, line 24 of the application.

Rejections Under 35 USC § 103

Cavalli '042 in view of Young '947

Young '947 teaches, as discussed above, a preparation process for a catalyst useful for hydrocarbon conversion containing Mo and/or W (Abstract, claim 1).

Cavalli '042 teaches a catalyst composition for the oxidation of methanol to formaldehyde, which comprises a combination of the well-known specific catalytic system of iron molybdate and MoO₃, and non-sintered ferric oxide (Abstract; claim 1).

The Examiner argues that Young '947 shows that Mo and W are functional equivalents in his catalyst, and therefore it would be obvious to the skilled person to add W to the catalyst of Cavalli '042. Apparently, the Examiner fails to see that the catalyst of Cavalli '042 and that of Young '947 are to be used in completely different reactions, i.e. methanol oxidation and hydrocarbon conversion, respectively. The person skilled in the art would have no incentive to combine the teaching of these references, because they are directed to catalysts which are used in totally different reactions

Furthermore, the instant claims are directed to a catalyst composition for the hydroprocessing of hydrocarbon feedstocks. This would provide even further disincentive to apply a combination of Cavalli '042 and Young '947 to arrive at the present invention. The catalyst composition of the present invention is clearly non-obvious in view of Cavalli '042 and Young '947.

JP 57-119837

As discussed above, JP 57-119837 describes a catalyst for olefin oxidation containing Mo, Bi, Sb, Pb, O, one or more elements selected from the group of Co, Ni, Fe, Mn, and Cr, and 1-10 wt.% of an organic compound. Since this reference is directed to oxidic catalysts to be used in olefin oxidation, and, with regard to claim 1, contains nothing which would teach the use of a sulfidic catalyst in hydroprocessing, the amended claims to a catalyst composition for the hydroprocessing of hydrocarbon feedstocks having at least part of its metal components in the sulfided form is in no way obvious over this reference.

With regard to claim 25, nowhere in JP 57-119837 is there a hint of a catalyst composition containing both molybdenum and tungsten. Therefore, claim 25 must be considered non-obvious over this reference.

JP 1986-220741

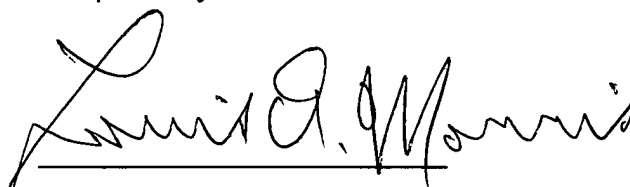
JP 1986-220741 describes a hydrotreating catalyst comprising a transition metal supported on fine powder such as carbon black (claim; pp. 8 and 10). The preferred amount of the metal is 0.1-50 wt.%, based on the weight of the fine powder (p. 15). This gives a maximum of c. 50 wt.% of metal oxide content, based on the weight of the catalyst, using MoO₃ for the calculation. Further, as can be seen in Table 1 on page 19, all the metal contents described are below 20 wt.%.

Consequently, this reference does not disclose or suggest a catalyst composition that is made up of at least about 70 wt.% of Group VIII and Group VIB metal components, calculated as oxides. Therefore, the present invention is clearly novel and non-obvious over this reference.

Conclusion

In view of the amendments to the instant claims and the above remarks, applicant has obviated all grounds for rejection. Applicant respectfully requests that the restriction requirement be modified consistent with the above and that the instant claims be allowed and issued in due course.

Respectfully submitted

A handwritten signature in black ink, appearing to read "Louis A. Morris", written over a horizontal line.

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